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## Acute Coronary Syndromes

# ACCURATE PREDICTION OF FALSE POSITIVE STEMI: READY FOR PRIME TIME

Poster Contributions
Poster Hall B1
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Session Title: ECG, Cardiac Markers and Triage, Oh My!
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**Background:** In 2009, 683,000 patients were discharged from US hospitals with a diagnosis of acute coronary syndrome (ACS); 25-40% was ST Segment Elevation Myocardial Infarctions (STEMI). The incidence of false positive STEMI is estimated at 11% - 36%. Inappropriate cardiac catheterization laboratory (cath lab) activation in this setting may lead to complications, provider fatigue and improper resource utilization. A recent study by Nfor et al identified a simple risk calculator based on clinical and EKG characteristics which predicted with reasonable accuracy the likelihood of negative coronary angiograms in patients presenting with symptoms and EKGs suggestive of STEMI (AUC 0.88). Our study aims to validate the risk calculator described by Nfor et al.

**Methods:** We conducted a retrospective cohort analysis of 1,144 STEMI patients who presented to our University Hospital between Sept 2008 and Jan 2013. False positive STEMI was defined as the absence of thrombotic total or subtotal coronary occlusion on diagnostic coronary angiograms. According to the Nfor criteria, the following scores were given to each factor: No chest pain 3; no reciprocal ST depression 3; < 3 cardiovascular risk factors 2; symptom duration > 6 hours 2; illicit drug use 0.5; hemodynamic stability 0.5; direct transfer 0.5. A total score was computed for each patient. A ROC curve was derived to test the accuracy of the risk calculator in predicting false positive STEMI.

**Results:** Of the 1,091 patients who had complete data, 252 (23%) satisfied criteria for false positive STEMI. We then constructed a receiver operating characteristic (ROC curve). Area under the curve (AUC) was calculated to be 0.737 (95% confidence interval 0.696-0.777).

**Conclusion:** A highly predictive risk calculator would be a useful tool for avoiding unnecessary emergent cardiac catheterizations. However, in our large STEMI series, the algorithm proposed by Nfor et al had modest predictive value. Further studies are needed to improve the accuracy for identifying patients who do not require emergent cath lab activation.